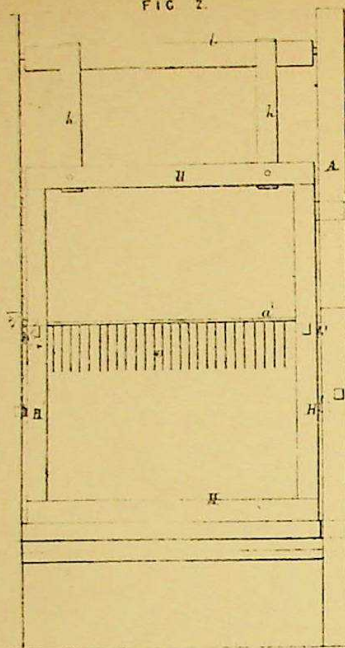


FIG. 2.



A.D. 1867, JUNE 8, N° 1689,  
RALSTON'S SPECIFICATION.

*Candle & Apparatus*

FIG. 1.

(2) sheet

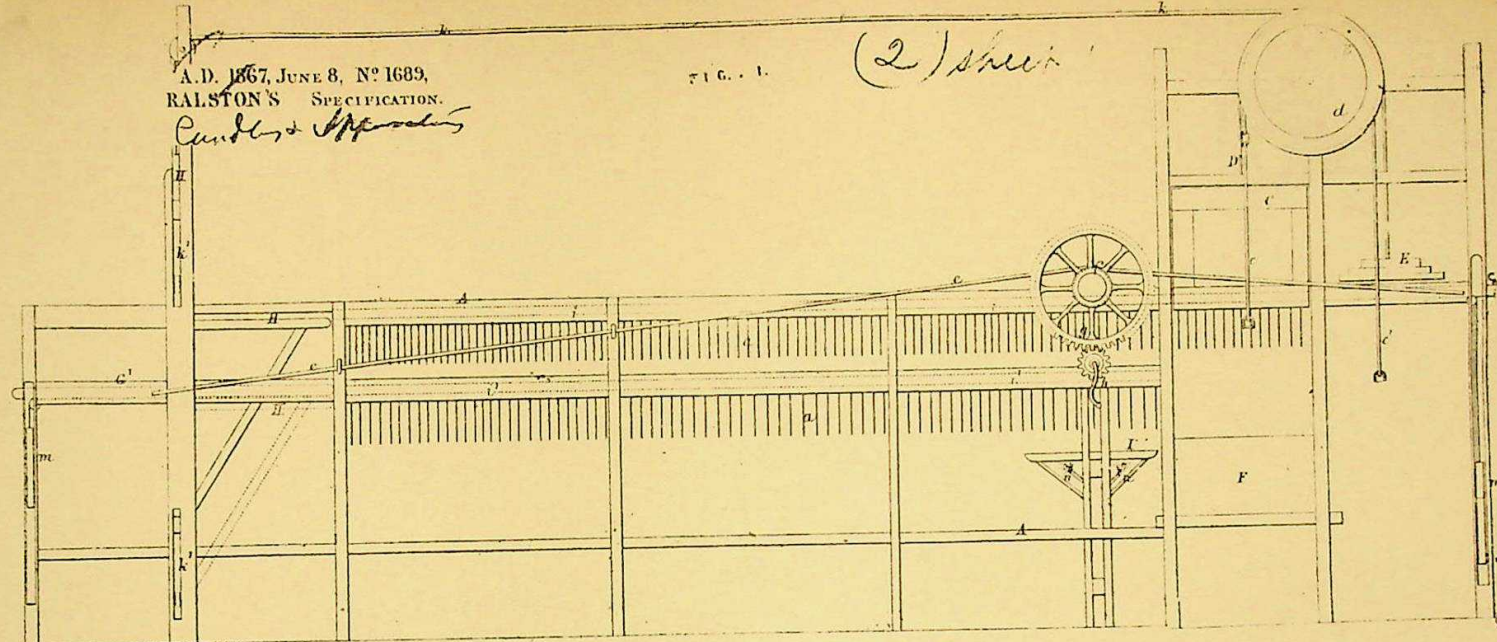


FIG. 4.

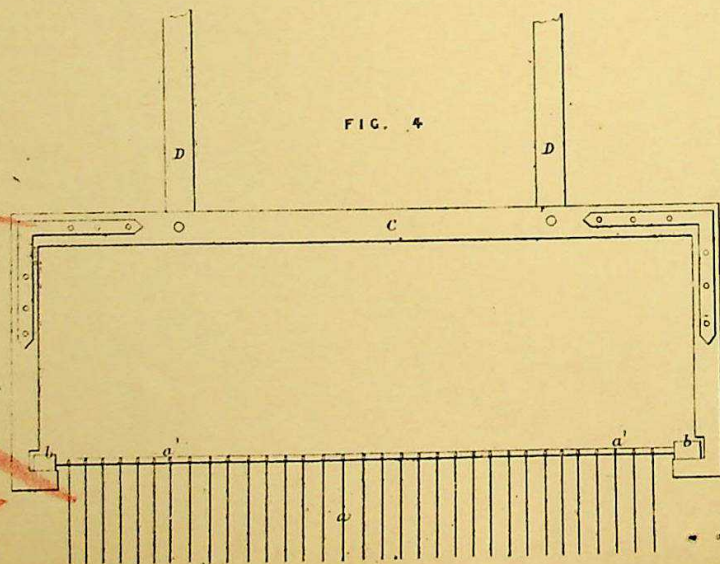


FIG. 5.

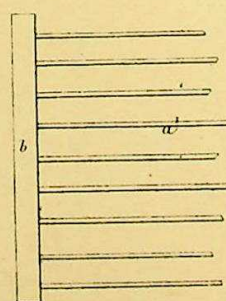
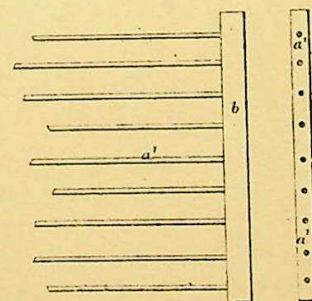


FIG. 6.





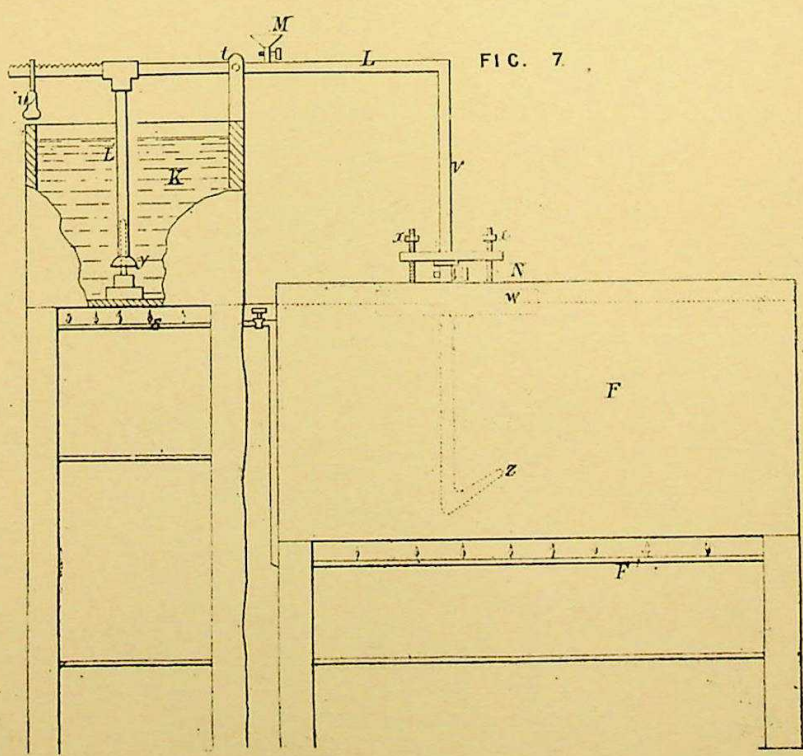
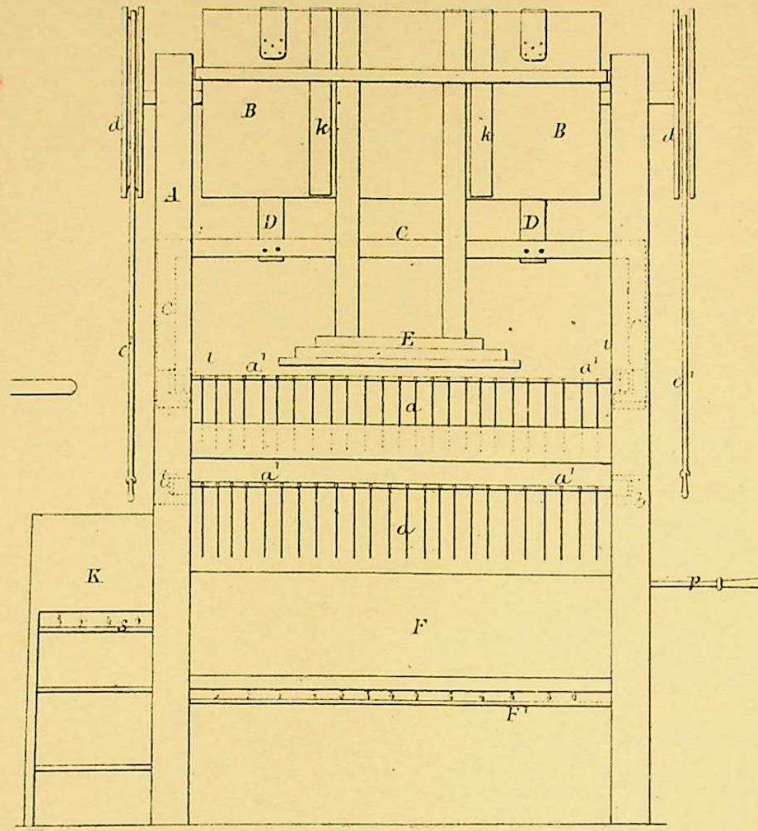
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OILS, FATS, AND GLUE  
 CARBON DIOXIDE

BRITISH 1639 OF 1867

a D 1867 June 8 1639 FIG. 3.  
 Raestons

(2) Sheet 2.



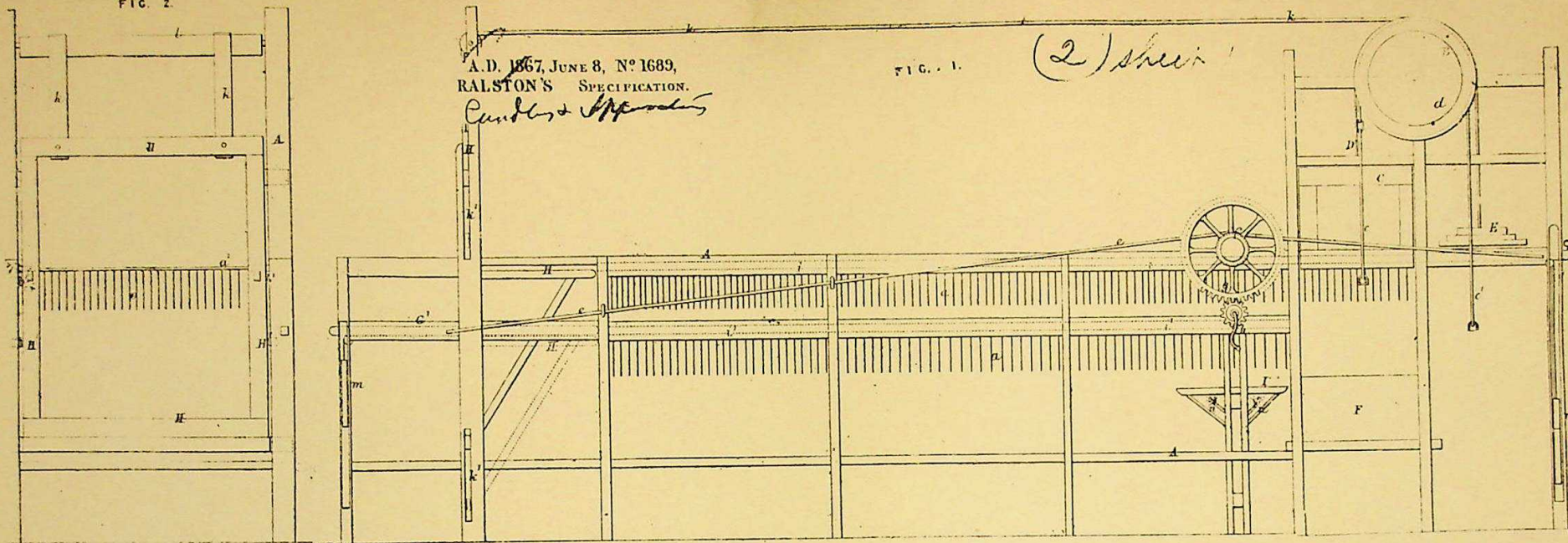


RALSTON'S SPECIFICATION.

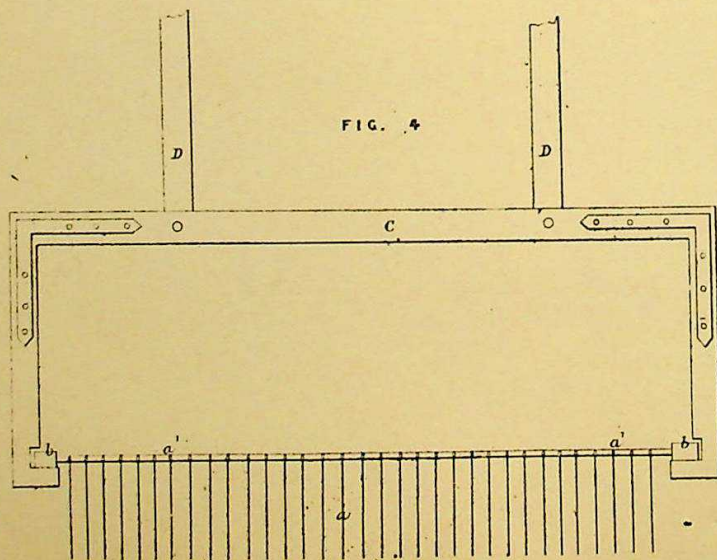
RALSTON'S SPECIFICATION.

Cardinal & Appendix

(2) sheet



*D*



A diagram showing a vertical beam with several horizontal layers. The beam is labeled 'b' on the left. The layers are labeled 'u' in the middle. The beam is shown in a perspective view, with the layers extending to the right.

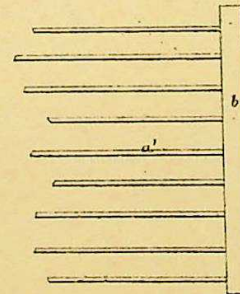
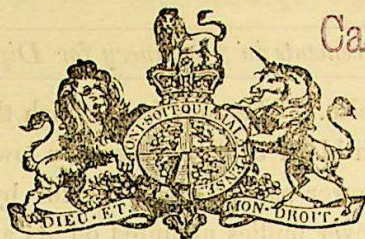


Diagram illustrating a vertical column of 10 dots. The top dot is labeled  $a'$  and the second dot from the top is labeled  $a$ .







A.D. 1867, 8th JUNE. N° 1689.

### Dipping Candles.

**LETTERS PATENT** to John Clements Ralston, of the Firm of Ralston and Clements, Soap and Candle Manufacturers, of Newry, in the County of Armagh, Ireland, for the Invention of "IMPROVEMENTS IN MACHINERY OR APPARATUS FOR MAKING CANDLES BY DIPPING, AND IN THE SELF-FEEDING OF THE TALLOW VESSEL OR MOULD THEREOF."

Sealed the 19th November 1867, and dated the 8th June 1867.

**PROVISIONAL SPECIFICATION** left by the said John Clements Ralston at the Office of the Commissioners of Patents, with his Petition, on the 8th June 1867.

I, JOHN CLEMENTS RALSTON, of the Firm of Ralston and Clements, Soap and Candle Manufacturers, of Newry, in the County of Armagh, Ireland, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN MACHINERY OR APPARATUS FOR MAKING CANDLES BY DIPPING, AND IN THE SELF-FEEDING OF THE TALLOW VESSEL OR MOULD THEREOF," to be as follows:—

This Invention relates to apparatus for making dipped candles, by the aid of which a much superior article may be produced than by the ordinary hand method, and a great saving in manual labor effected, as one workman can dip from 24 to 72 rods of candles, according to the size of the machine, in the same time as six or eight rods would require by the hand method.

The dipping apparatus is mounted in suitable framing, at one end of which is a large drum turning in bearings at the upper part of said framing; a rake or dipper is suspended from this drum by belting attached to same, and



*Ralston's Improvements in Machinery for Dipping Candles.*

provided with a counterpoise. The rods from which the wicks are suspended are placed in blocks, each block being successively lowered by the dipper into the tallow mould at the lower part of the apparatus by rotating the drum by the aid of straps passing over pullies mounted on its axis at either side of the framing. The rake or dipper carrying the rods and wicks is raised out of 5 the mould by turning the drum in the contrary direction, a sliding frame pushing each block of rods and wicks from the rake or dipper through grooves made in the upper stage of the framing on to a dropping frame at the opposite end of the machine. The sliding frame is provided with counterbalance weights, and is actuated by a cord passing around a small drum to a second 10 sliding frame placed parallel with the grooves of a lower stage at the other end of the apparatus; said drum is mounted in bearings on the framing, and is provided with toothed gearing operated by a winch handle, by turning which in one or other direction the sliding frames are actuated alternately. The dropping frame above mentioned is attached to the rake drum by bands 15 passing over a roller at the other end of the apparatus, and rising and falling in grooves of the end frames, the movements of the dropping frame being simultaneous with that of the rake. When the blocks are received on the arms of the dropping frame, the latter, together with the rake, are lowered until they are brought on a level with the lower set of grooves; the winch 20 handle is then turned for actuating the second sliding frame, which removes the rods and wicks from the dropping frame, pushing them through the lower grooves on to the rake; the large drum is then revolved for lowering the rake and wicks into the tallow mould for receiving another layer of tallow, the operation being repeated as often as required. A metal plate is placed 25 alongside the mould heated by rows of gas jets from underneath, over which the candles are caused to pass in their traverse through the machine in order to remove any inequalities from their ends; the plate is adjusted in position with regard to the candles by the aid of a lever handle.

The Invention further relates to the self-feeding action of the tallow mould. 30 For this purpose the mould is provided with rows of gas burners underneath for keeping the tallow in the proper degree of heat, and at one end of same there is a vessel by means of which the mould is kept self-supplied with tallow; this vessel is provided with a syphon tube pivotted thereon, having a counterbalance at one end, the other end being attached to a wood float which 35 rises and falls in the mould as it fills or becomes empty; said float is adjusted in position on the syphon tube by the aid of screws for the purpose of regulating the height to which the surface of the tallow is to rise; this is effected



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by the aid of a valve at the lower part of the syphon tube in the tallow vessel, and opening downwards by its own weight when the float sinks so as to admit tallow to the mould until it again rises to its proper level, when the valve again closes. A funnel mouth is provided at one part of the syphon for  
5 filling it on starting; for this purpose the stop-cock above the float is closed, and the valve in the tallow vessel above-mentioned pressed down, after which by closing the funnel cock and opening that of float the syphon will commence to act as desired.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed  
10 by the said John Clements Ralston in the Great Seal Patent Office on the 7th December 1867.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN CLEMENTS RALSTON, of the Firm of Ralston and Clements, Soap and Candle Manufacturers, of Newry, in the County of Armagh, Ireland, send  
15 greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Eighth day of June, in the year of our Lord One thousand eight hundred and sixty-seven, in the thirtieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said  
20 John Clements Ralston, Her special licence that I, the said John Clements Ralston, my executors, administrators, and assigns, or such others as I, the said John Clements Ralston, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might  
25 make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN MACHINERY OR APPARATUS FOR MAKING CANDLES BY DIPPING, AND IN THE SELF-FEEDING OF THE TALLOW VESSEL OR MOULD THEREOF," upon the condition (amongst others) that I, the said John Clements Ralston, my executors  
30 or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters  
35 Patent.



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NOW KNOW YE, that I, the said John Clements Ralston, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the Sheet of Drawings hereunto annexed, and to the letters and figures marked thereon (that is to say) :— 5

This Invention relates to apparatus for making dipped candles, by the aid of which a much superior article may be produced than by the ordinary hand method, and a great saving in manual labor effected, as one workman can dip from twenty-four to seventy-two rods of candles, according to the size of the machine, in the same time as six or eight rods would require by the hand method. 10

The dipping apparatus is mounted in a suitable framing, at one end of which there is a large drum turning in bearings at the upper part of said framing. A rake is dipped or suspended from the drum by belting attached to the same and provided with a counterpoise. The rods from which the wicks are suspended are placed in blocks, each set of blocks being successively 15 lowered by the dipper into the tallow mould at the lower part of the apparatus by rotating the drum, by the aid of straps passing over pullies mounted on its axis at either side of the framing; the rake or dipper carrying the rods and wicks is then raised out of the mould by turning the drum in the contrary direction, a sliding frame pushing each set of blocks with rods and wicks from 20 the rake or dipper through grooves made in the upper stages of the framing on to a dropping frame at the opposite end of the machine. The sliding frame is provided with counterbalance weights, and is actuated by a belt passing around a small drum to a second sliding frame placed in a line with the grooves of a lower stage at the other end of the apparatus, said drum is 25 mounted in bearings in the framing, and is provided with toothed gearing operated by a winch handle. The dropping frame above mentioned is attached to the rake drum by a belt passing over a roller at the other end of the apparatus, rising and falling in grooves of the end frame, the movement of the dropping frame being simultaneous with that of the rake. When the blocks 30 are received in the dropping frame the rake and consequently the dropping frame are lowered until they are brought on a level with a lower set of grooves; the winch handle is then turned actuating the second sliding frame, which removes the rods and wicks from the dropping frame, pushing them through the lower grooves on to the rake; the large drum is then revolved, 35 lowering the rake and wicks into the tallow mould for receiving another layer of tallow, the operation being repeated as often as required. A metal plate is placed alongside the mould heated by rows of gas jets from underneath,



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over which the candles are caused to pass in their traverse through the machine in order to remove any inequalities from their ends. The plate is adjusted in position with regard to the candles by the aid of a rack-and-pinion movement or communicated by a lever handle.

- 5 The Invention further relates to the self-feeding action of the tallow mould. For this purpose the mould is provided with rows of gas burners underneath for keeping the tallow at the proper degree of heat, and at one end of same there is a vessel by means of which the mould is kept self-supplied with tallow; this vessel is provided with a syphon tube pivotted thereon, having a  
10 counterbalance at one end, the other being attached to a wood float which rises and falls in the mould as it fills or becomes empty; said float is adjusted in position on the syphon tube by the aid of screws for the purpose of regulating the height to which the surface of the tallow is to rise; this is effected by the aid of a valve at the lower part of the syphon tube in the tallow vessel and  
15 opening downwards by its own weight when the float sinks, so as to admit tallow to the mould until it again rises to its proper level, when the valve again closes. A funnel mouth is provided at one part of the syphon for filling it on starting; for this purpose the stop-cock above the float is closed and the valve in the tallow vessel above mentioned pressed down, after which by  
20 closing the funnel cock and opening that of float the syphon will commence to act as desired.

## DESCRIPTION OF DRAWINGS.

Figure 1 of the Drawings represents a side view of my improved apparatus for the manufacture of dipped candles; Figures 2 and 3 being views of  
25 opposite ends of the same.

A, A, is a suitable framing having a drum B mounted at one end, from which is suspended the rake or dipping frame C, separately represented at Figure 4, by means of belting D attached to the drum, which is further provided with a counterpoise E. The dipping frame C sliding in the end frames A  
30 carries the wicks *a, a*, which are placed on rods *a<sup>1</sup>, a<sup>1</sup>*, Figure 3, fitted in blocks *b*, as shown separately in plan at Figure 5 and section Figure 6; this dipping frame is suspended over a tallow mould F at the lower part of the apparatus, into which it is lowered with the wicks by rotating drum B by the aid of straps *c, c*, attached to pullies *d, d*, mounted outside the framing at each  
35 end of said drum. After receiving the tallow from the mould the dipper carrying the wicks and rods *a<sup>1</sup>, a<sup>1</sup>*, is raised therefrom by rotating the drum B in the reverse direction by the straps *c<sup>1</sup>, c<sup>1</sup>*, to a sufficient height to bring it



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opposite a sliding frame G connected by means of a belt *e* passing round a drum *f* mounted in suitable bearings in the side frames A, A, and attached at the other end of the machine to a second sliding frame G<sup>1</sup> placed at a lower level, as will be presently referred to. The drum *f* is provided with toothed gearing *g* and winch handle *h*, by rotating which the belt *e* is caused to operate 5 the sliding frame G so as to remove each block of rods and wicks in succession from the dipper into the grooves *i*, *i*, of framing A, whence they pass on to the bars *b* of a dropping frame H disposed at the opposite end of the machine. This dropping frame is connected to the large drum B, before mentioned by means of bands *k*, *k*, attached thereto, and passing over a roller *l* at the 10 opposite end of the machine to said drum from which it is suspended. The dropping frame H is fitted to rise and fall in grooves *k*<sup>1</sup> in the end framing, as shown, and on the drum B being rotated as before explained by the straps *c*, *c*, the dropping frame will be lowered simultaneously with the dipper C, depositing the blocks on brackets H<sup>1</sup> so as to bring them together with the wick blocks 15 on a level with the lower row of grooves *i*<sup>1</sup>, *i*<sup>1</sup>, in the frames A, into which the wick blocks are immediately introduced and passed through the grooves *i*<sup>1</sup>, *i*<sup>1</sup>, by the aid of a second sliding frame G<sup>1</sup> before referred to as connected to the belting of drum *f*, which is effected by operating the winch handle *h*. In this manner the wick blocks *b* are again delivered on to the 20 dipper C in readiness for receiving another layer of tallow by the lowering of said dipper into the mould F by the aid of the drum B, as before described, the operation being repeated as often as necessary, thus a continuous action is maintained, the wicks being dipped, passed through the machine, and transferred to a lower level to be again delivered to the dipper, and so on. The 25 sliding frames G, G<sup>1</sup>, after removing the blocks from the dipper and dropping frame are returned to position by means of the weighted cords and pullies *m*, *m*, at either end of the machine. I is a metal plate placed near the tallow mould F, heated by gas jets *n*, *n*, as seen, by means of which any inequalities may be removed from the ends of the candles before passing out of the machine, said 30 plate being raised by the aid of a rack and pinion, or motion may be communicated by means of a lever *p* so as to bring it in contact with the candle ends.

The advantages of this machine over the ordinary hand method as regards speed are, that the workman can dip at once from twenty-four up to seventy- 35 two rods of candles, according to the size of the machine, while by hand only six or eight rods can be dipped in the same time, while the workman being able to balance the weight accurately by means of the counterpoise L can



*Ralston's Improvements in Machinery for Dipping Candles.*

readily manage the largest sized machines. Further, on account of all the candles passing through the same currents of air by moving over every part of the machine in turn they are all equally exposed while dipping, and so are when finished as nearly as possible equal in size, which is an important  
5 advantage. This machine is extremely simple in its action, and from the extreme steadiness of every motion there is not the slightest tendency in the candles to stick together.

My Invention further relates to a means of obtaining the self-feeding action of the tallow mould F. This improvement is represented in Figure 7 of the  
10 Drawings, which shows a side view of the mould, partly in section, on an enlarged scale to the other Figures; for this purpose I provide a row of gas jets F<sup>1</sup> underneath the mould F for keeping the tallow contained sufficiently heated, and at one end of said mould I place a vessel or receptacle K for keeping the mould supplied with tallow by a self-acting arrangement, said  
15 tallow vessel being also heated by gas jets s at its under part. I obtain the self-feeding action by means of a syphon pipe L pivotted to the tallow vessel at t, one end of which is weighted at u, u, while the other and depending portion v is received in the mould F, where it is provided with a float w which rises and falls with the syphon pipe L according to the amount of tallow in the mould,  
20 the position of the float for regulating the height to which the tallow may rise being adjusted by the screws x. The tallow is supplied from the vessel K through the other limb L<sup>1</sup> of the syphon pipe L, depending in said vessel and having a valve y at its bottom end, which opens as the float w sinks in the mould, when the supply of tallow falls short in order to admit the melted  
25 tallow to the open end of the syphon pipe, which passes through said pipe to the lower part of said mould F at the bent arm z, as shown, and when the level of the tallow rises the syphon will be again raised by the float w so as to close the valve y and cut off the supply from vessel K; a funnel M is placed on the syphon for filling it at starting, for which purpose the stop-cock N  
30 above the float is closed, as also the valve y in the tallow vessel K, after which by closing the cock of funnel M, and opening N, the syphon at once acts as desired for supplying the mould with tallow.

Having described the nature of my Invention, and the manner of performing the same, I declare that what I claim as my Invention to be protected by the  
35 herein-before in part recited Letters Patent is,—

First, the arrangement and combination of parts forming an improved machine for the manufacture of dipped candles, as herein-before described and illustrated in the Drawings.



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*Ralston's Improvements in Machinery for Dipping Candles.*

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Secondly, I claim the means and apparatus for obtaining the self-feeding of the tallow mould, all as herein-before described.

In witness whereof, I, the said John Clements Ralston, have hereunto set my hand and seal, this Fourth day of December, in the year of our Lord One thousand eight hundred and sixty-seven. 5

JOHN CLEMENTS RALSTON. (L.S.)

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LONDON:

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Printers to the Queen's most Excellent Majesty. 1867.